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**Utilizing a Stress and Coping Model into a Preventive Abusive Head Trauma
Parent/Caregiver Educational Program**

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Final

Abstract

Abusive head trauma (AHT) is a serious form of child maltreatment that is the primary cause of fatal head injuries in children younger than 24 months and is the cause for over 50% of severe or fatal traumatic brain injury incidences. These injuries can be caused by impact, shaking, or the combination of shaking and impact. These multi-factorial injuries can cause intracranial and spinal damage, retinal hemorrhages, and fractures of ribs and other bones. The age and severity of injuries will be used to assess the diagnosis of AHT. When AHT occurs, it is often tied to the behavior from a parent or caregiver as a reaction to a crying infant. Conceptual models and nursing theories have helped nurses use years of accumulated nursing knowledge to develop and put evidence into practice. The stress theory of Lazarus and Folkman highlights the associations among individual characteristics, environment, a stressful event, and coping (Lazarus, 2000). Identification of these triggers is important to AHT prevention because if these behaviors precipitate abuse then interventions can be utilized (Lazarus, 2000). The reaction to the behaviors that causes AHT is avoidable and an educational prevention program can help reduce the incidence and cost with AHT. The purpose of this review is to assess previous preventive educational programs that focus on caregivers and healthcare professionals in reducing the incidence of AHT in children 24 months or younger and possible barriers to healthcare professionals and caregivers.

Keywords: shaken baby syndrome, prevention and control, abusive head trauma, nurses, caregivers

Utilizing a Stress and Coping Model into a Preventive Abusive Head Trauma Parent/Caregiver Educational Program

Abusive head trauma (AHT) is a serious form of child maltreatment that is the primary cause of fatal head injuries in children younger than 24 months. AHT results in over 50% of severe or fatal traumatic brain injury with incidences of 17 cases per 100,000 (Shaikh et al., 2019). These injuries can be caused by impact, shaking, or the combination of shaking and impact. These multi-factorial injuries can cause intracranial and spinal damage, retinal hemorrhages, and fractures of ribs and other bones. The age and severity of injuries will be used to assess the diagnosis of AHT. When AHT occurs, it is often tied to the behavior from a parent or caregiver as a reaction to a crying infant. The reaction to this behavior is avoidable, and an educational prevention program can help reduce the incidence and cost that occurs with AHT.

The American Academy of Pediatrics Committee of Child Abuse and Neglect has stated that “individuals observing it (AHT) would recognize it as dangerous and likely to kill the child” (Gutierrez et al., 2004, p. 24). These children that experience trauma to their head can sustain not only cognitive damage but also suffer lifelong consequences with conservative costs estimated at an average of \$210,012 per infant for non-fatal injury and \$1,272,900 per fatal injury. Annually, AHT in the United States costs a financial burden of \$124 billion (Barr, 2012). Though children of either gender may be affected, female infants are less likely to be victimized than male infants (Stoll & Anderson, 2013).

A review of literature shows that adults that cause AHT to children under 24 months are most likely to be boyfriends, stepfathers, mothers, and temporary caregivers. There are also environmental risk factors that are common, such as adults that are in the home that are not biological parents, lower socioeconomic status, and family stress. With the spread of the novel

Coronavirus communities are urged to practice social distancing and sheltering-in-place, because of the recent economic downturn, parents are likely to experience increased level of stress and have fewer outlet for stress reduction. These factors are expected to increase the incidence of child maltreatment, and subsequently, AHT (Campbell, 2020). In a report by Campbell (2020) there are increased risk of domestic violence-related to homicide. These homicides with ties to stress or other factors related to Covid-19 pandemic are continuing to surface. These risks extend outside the home as well, as 20% of victims in domestic violence-related to homicides are not the intimate partner but rather a neighbor, family member, friend, bystander, first responder, or child.

The prevention of AHT through the education of healthcare professionals, caregivers, and parents may be an effective way of reducing the incidence of AHT. Healthcare professionals should be educated in prevention, detection, and treatment of AHT. Knowledgeable healthcare professionals will then educate parents and caregivers (Jenny et al., 1999; Yamaoka et al., 2019). Current prevention programs for AHT emphasize the importance for caregivers to know that crying is a natural part of development and to learn how to change the behavior or react without violence. Parents and caregivers that are educated on the prevention of AHT are more likely to educate others that will be caring for an infant and in turn reduce the incidence of AHT. The aim of this article is to discuss parent/caregiver knowledge of AHT and the effect of utilizing nurse led education through handouts and videos to parent/caregiver to improve AHT knowledge and reduce AHT incidence.

Review of the Literature

A literature review was conducted searching the databases of Medline ("Shaken Baby Syndrome/prevention and control"[Mesh] OR "Shaken baby syndrome") AND "abusive head

trauma" AND (prevent* OR reduc*) AND "Lazarus". A total of 22 articles and websites were found and all articles were reviewed. These articles were read to identify the proposed intervention and evidence of effectiveness. Several peer-reviewed articles have evaluated training programs for the prevention of AHT and SBS.

The results demonstrate high levels of support and feasibility of implementing a nurse, patient, and caregiver education program for the prevention of AHT and SBS (Bechtel et al., 2011; Dias et al., 2005; Duzinski et al., 2018; Fujiwara, 2015; Gutierrez et al., 2004; Kelly et al., 2016; Nocera et al., 2015; Rideout, 2016; Shanahan et al., 2014; Stoll & Anderson, 2013; Zolotor et al., 2015). The changes in behavior served as a model and indicator of practice behavior influencing higher levels of satisfaction and perception with nurses and related professionals. After the training, there was an indicator that the programs were helpful and useful to parents, increasing the knowledge of parents about AHT and SBS with video and handouts, and decreasing the previous percentage incidence of AHT and SBS within the health system. Developing, implementing and evaluating the prevention of AHT and SBS with a program could potentially save several children's lives, and the cost of the program could be recovered from the savings to the health system and our society.

The limits found in the reviewed literature included that most of the findings evaluating the outcomes were self-reported by nurses, parents, and caregivers. The studies were often brief measurements to the intervention with close ended questions. The major theme in prevention with all the studies included the following components: 1) the communities should be involved in prevention; 2) timely prevention interventions strategies and detection should be implemented; and 3) caregiver prevention educational programs link caregivers to appropriate resources. Based on the literature review findings, a project utilizing the Lazarus stress and coping model in

communities or clinics will provide preventive education to caregivers to decrease the incidence of AHT.

Creation of an AHT Prevention Program

The AHT prevention program was approached by embedding the Lazarus' framework components into its design. Lazarus' model of stress and coping was utilized to rationalize the outcome of a parent's or caregiver's response to a child's crying (transacted) with other antecedents (Lazarus, 2000). In the Lazarus theory, the individual and the environmental antecedents of the potential stressor transact. The differences in the individual's cognitive ability to process the possible stressor and the usage of coping strategies is the transaction. Factors that are theorized to impact AHT transaction are finances, biological child, race, age, gender, education, and child development knowledge.

Environmental impact factors that are considered moderators are infant crying, parent or caregiver personality traits or characteristic, and socioeconomic status. Moderators interact with independent factors to influence dependent factors and are existent before the stressor (Bechtel et al., 2011). Mediator factors are stress and coping. Mediation allows for the individual's thought process to occur naturally, and these factors are not present prior to the met stress. Transaction of the antecedents engages the cognitive mediating process. When the stressor is considered, this allows for the parent or caregiver to identify the stress. The parent or caregiver then identifies coping resources to reduce the stress which becomes the result of the stressful situation.

The Lazarus theory of stress and coping (Lazarus, 2000) identifies factors that may be amendable in AHT prevention education. The theory can be utilized to organize factors that are possible and known causes of AHT perpetration (Bechtel et al., 2011; Lazarus, 2000). Parents and caregivers are exposed to possibly stressful stimuli that will provoke behavior, including

abuse. Identifying these behaviors is vital to AHT prevention work because providers can implement focused interventions (Bechtel et al., 2011; Lazarus, 2000).

Lazarus' coping and stress model will be incorporated into the AHT prevention education and evaluation tools. The pre/post-tests measure the parent/caregiver's knowledge related to the AHT and coping skills from the AHT prevention education intervention. Tests assesses the parent/caregiver's understanding of AHT. Responses will be scored and the higher the score the higher the understanding of the AHT content. These measures illustrate whether the parent/caregiver is able to or has utilized the information from the AHT prevention education intervention. Preventive efforts with teaching and reinforcing the parent/caregiver's coping ability using the Lazarus theory relates directly with increasing AHT knowledge and coping skills of parents and caregivers with an AHT preventive education program and evaluation tools.

In conclusion, an AHT prevention program has the following goals: (a) to increase parents and caregiver's knowledge about crying in infants and frustration leading to shaking; (b) to help parents and caregivers identify coping strategies with educational handouts, video and nursing education; and (c) to reduce the incidence of AHT. The stress and coping model integration into the AHT prevention education will assist the parent/caregiver in identifying triggers that may cause one to shake a crying baby. Continued follow up and additional research will determine if an AHT prevention program for parent/caregiver education using the Lazarus model of stress reduction reduces the incidence of AHT.

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